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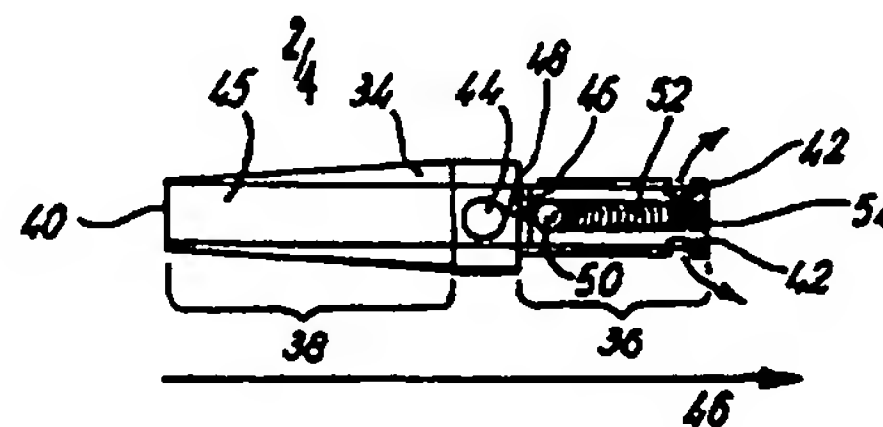
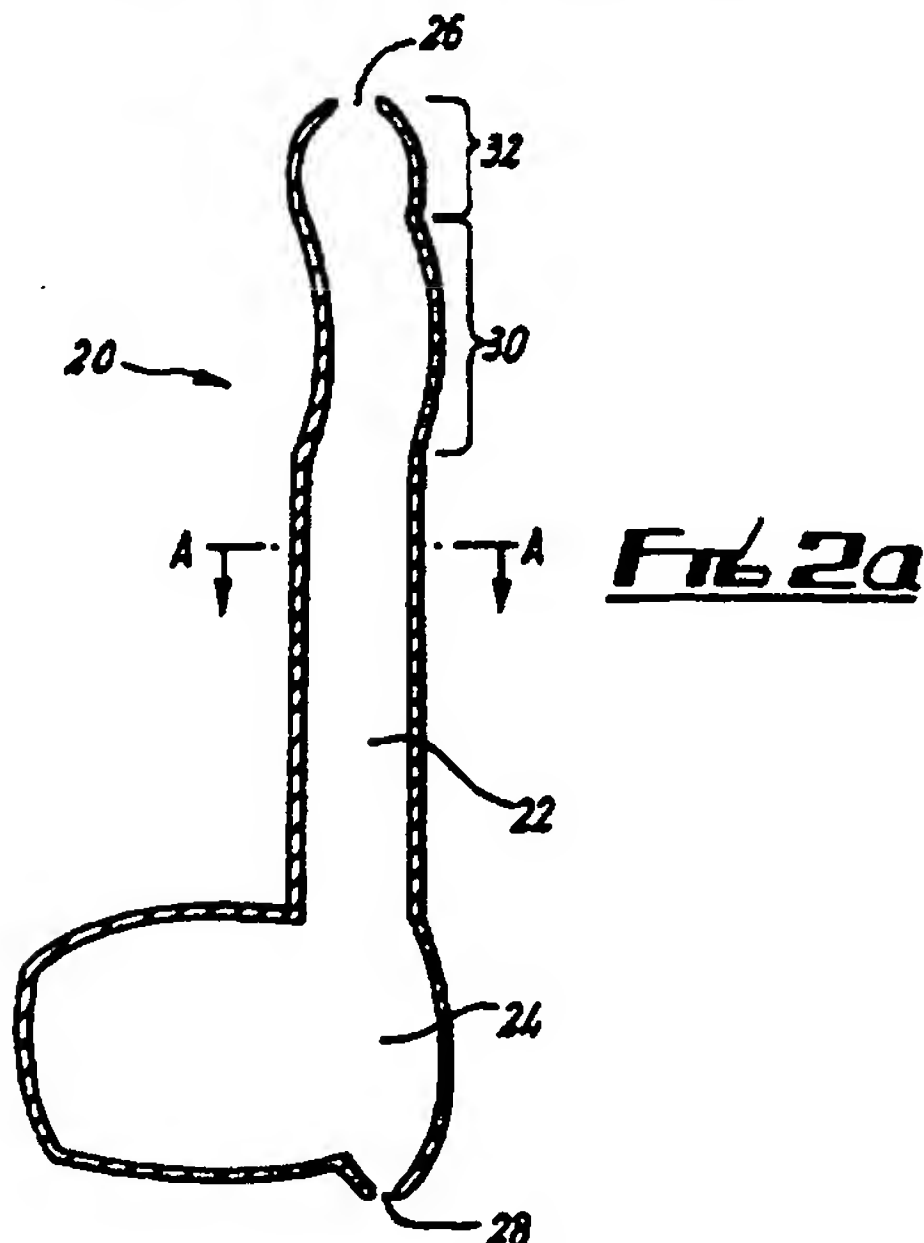
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(54) Urine collecting device and valves

(57) A urine collecting device comprises an elongate portion (22) opening into an integral collecting portion (24) the elongate portion has an inlet (26) remote from the collecting portion and the collecting portion has an outlet (28). The elongate portion is shaped such that it lies flat against and follows the contours of a users leg. A non-return valve may be provided at the inlet. The valve has a passageway (45) through it and may have a ball (50) which blocks an aperture (48) to prevent flow of urine in one direction but allows flow of urine in the opposite direction through the passageway. Alternatively, a resilient flap (64, Figure 4) may provide the valving function. Urine samples may be drawn from a port (44) provided in the valve. The valve may be used with a tap comprising a clamp for clamping an outlet tube fitted to an outlet of the valve.



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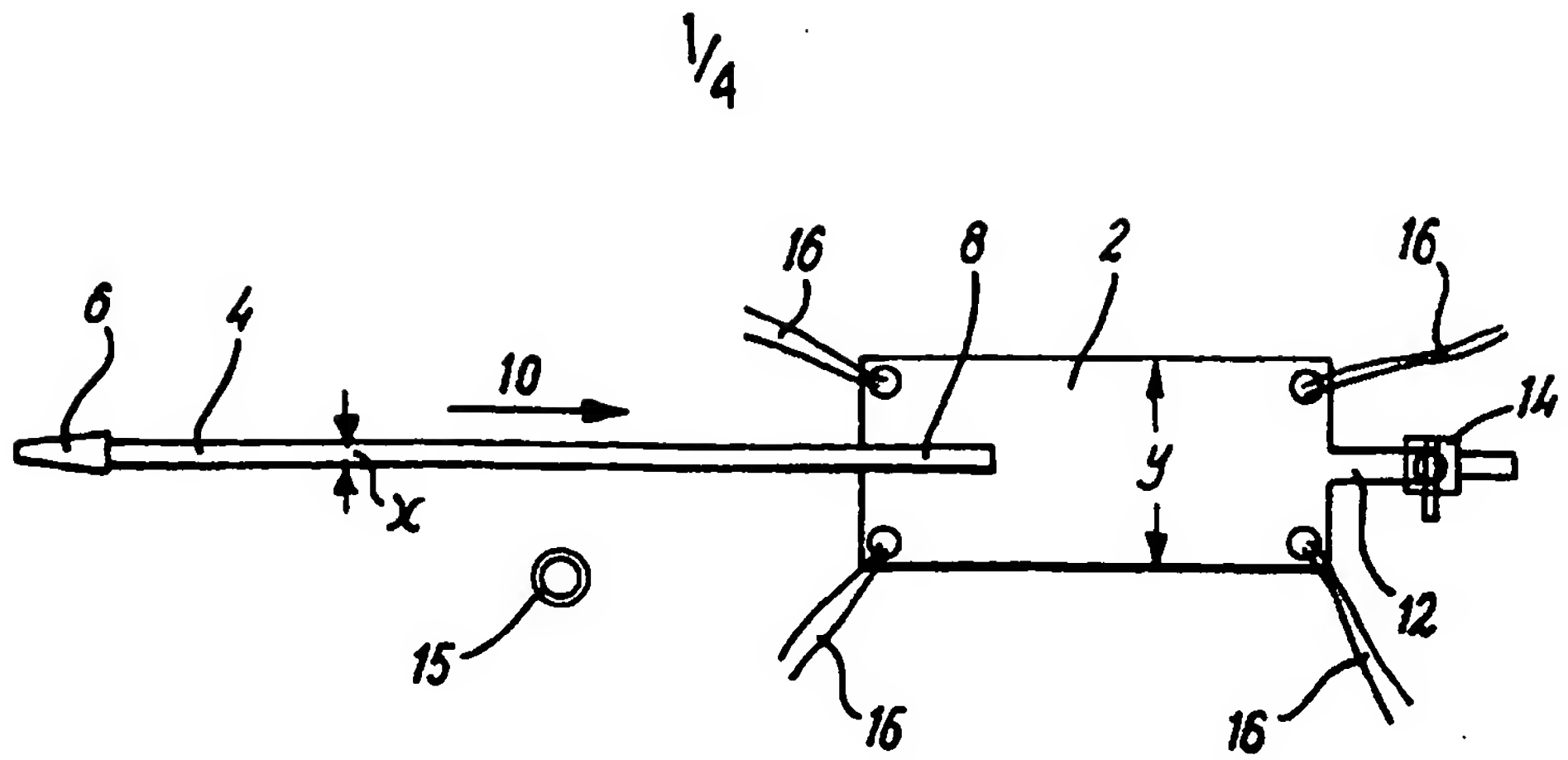


Fig. 1
(Prior Art)

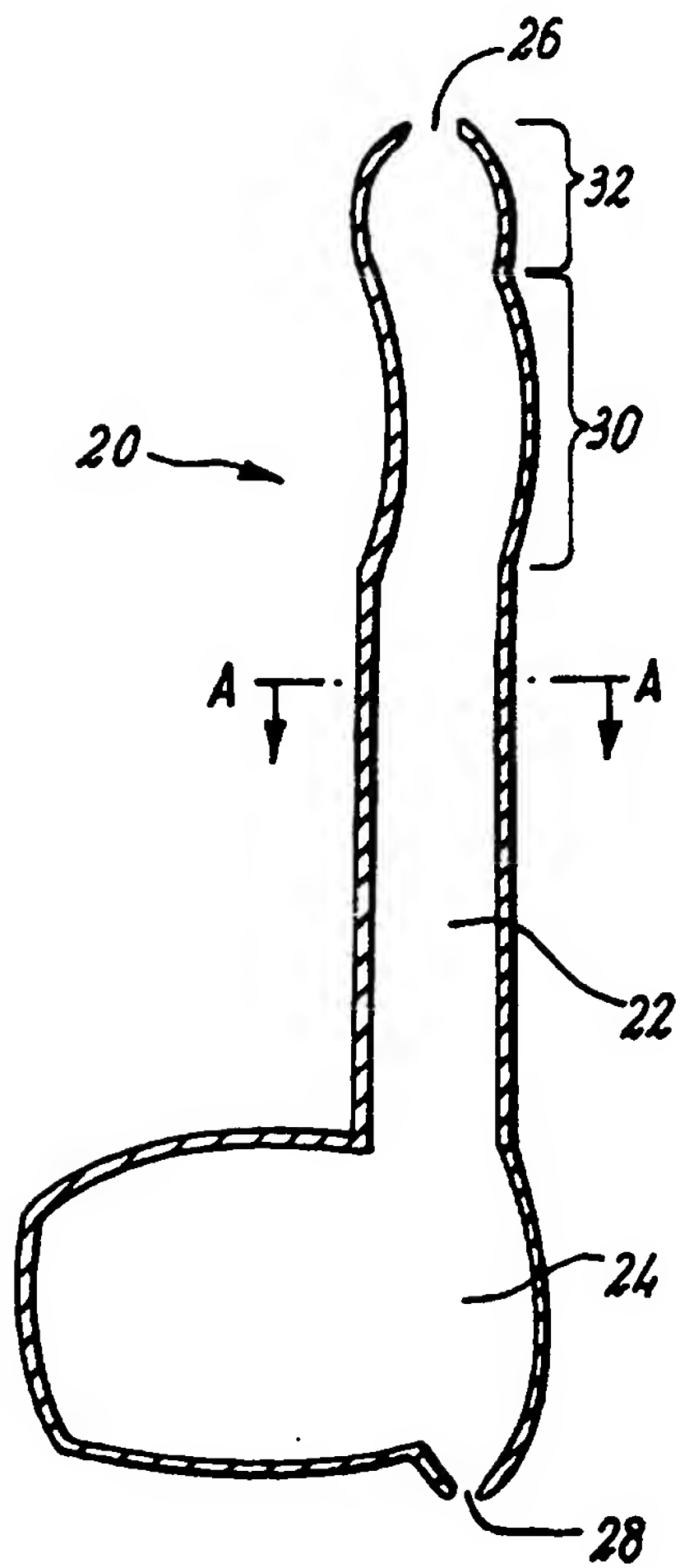


Fig. 2a



Fig. 2b

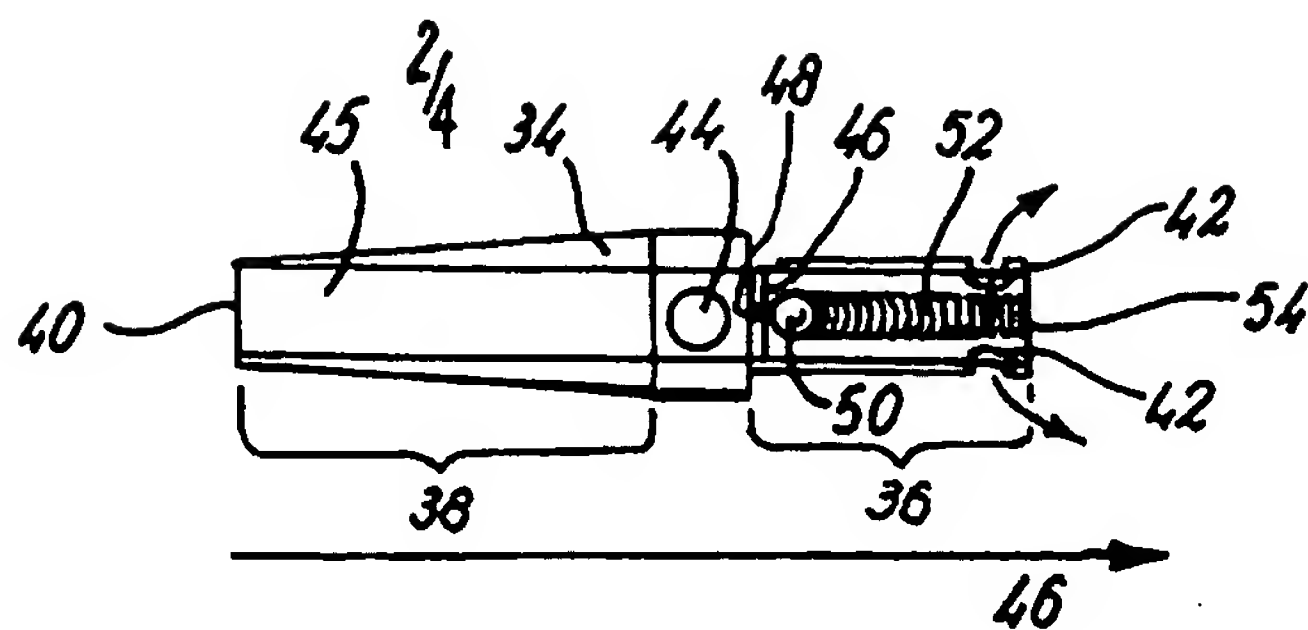


Fig. 3

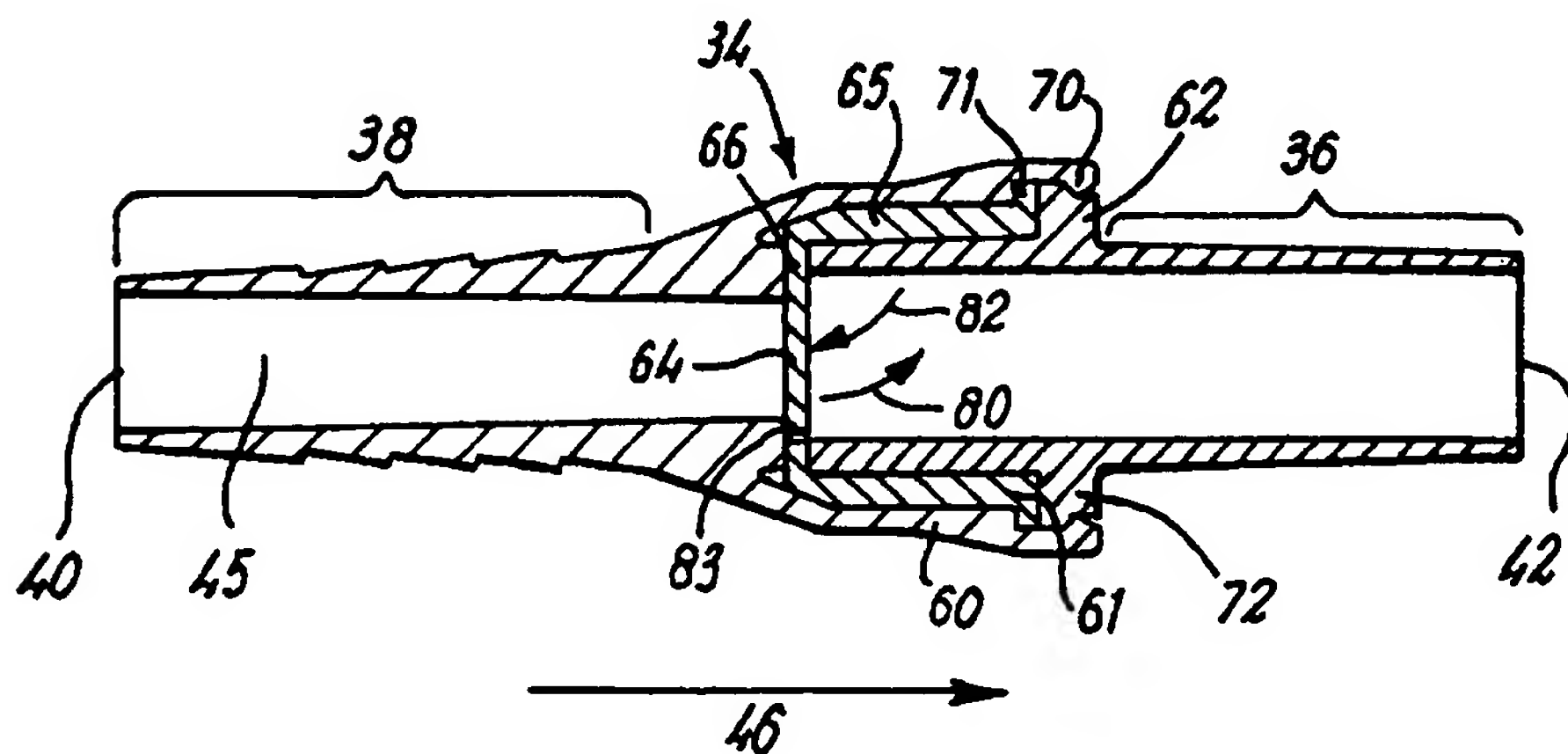


Fig. 4

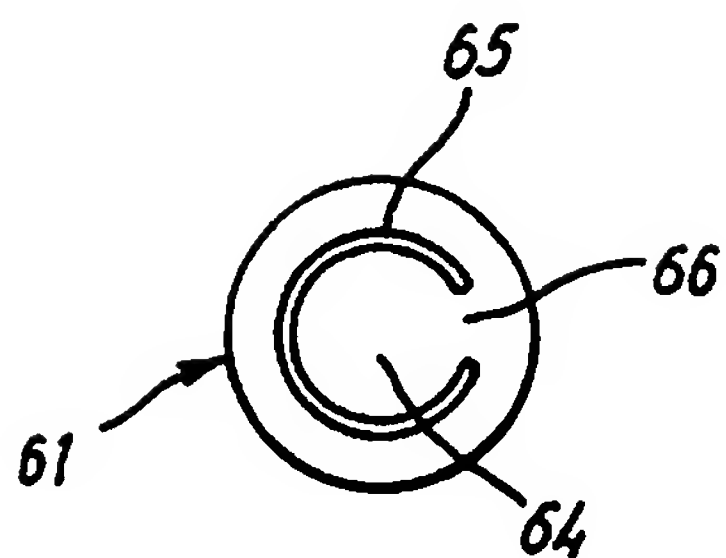
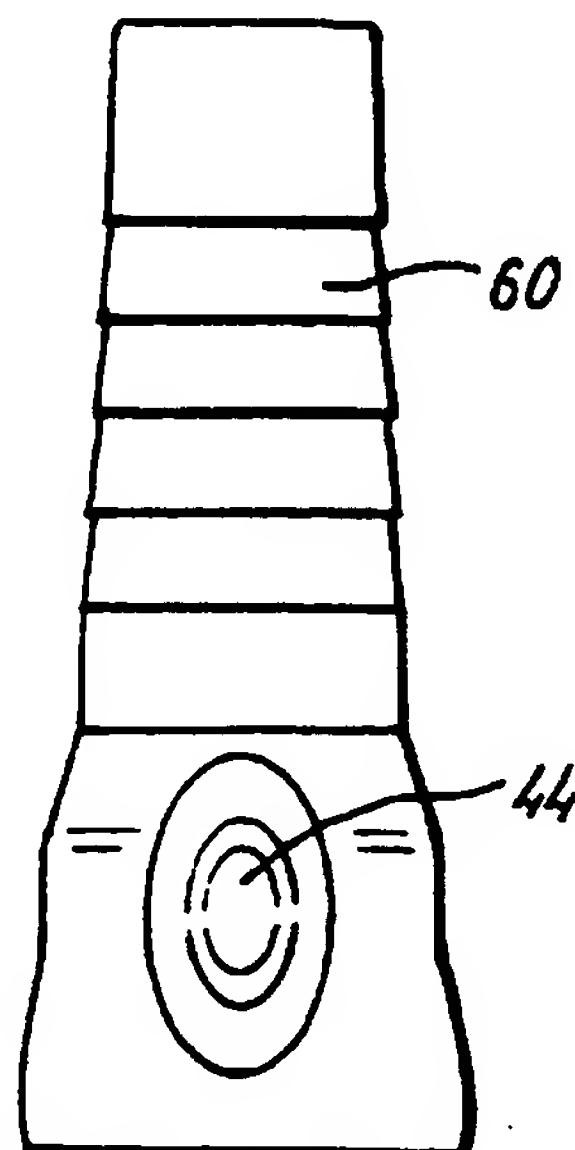
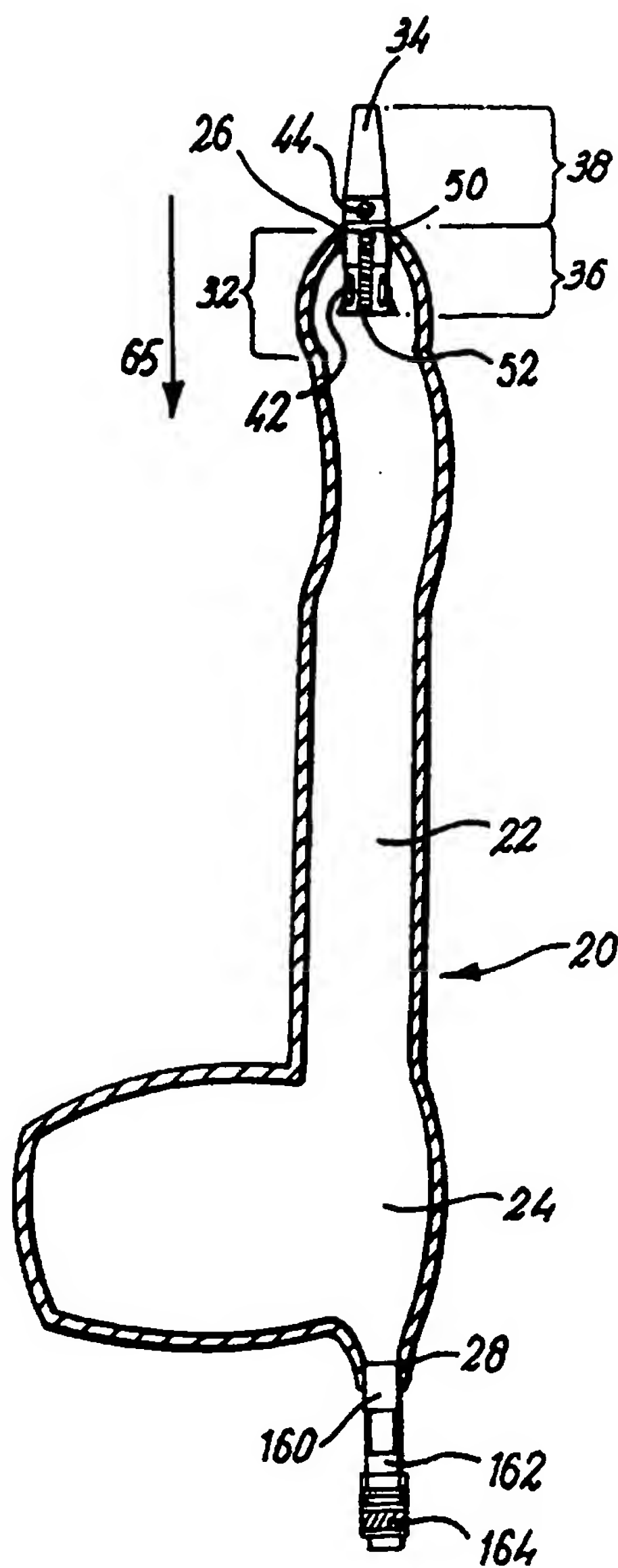


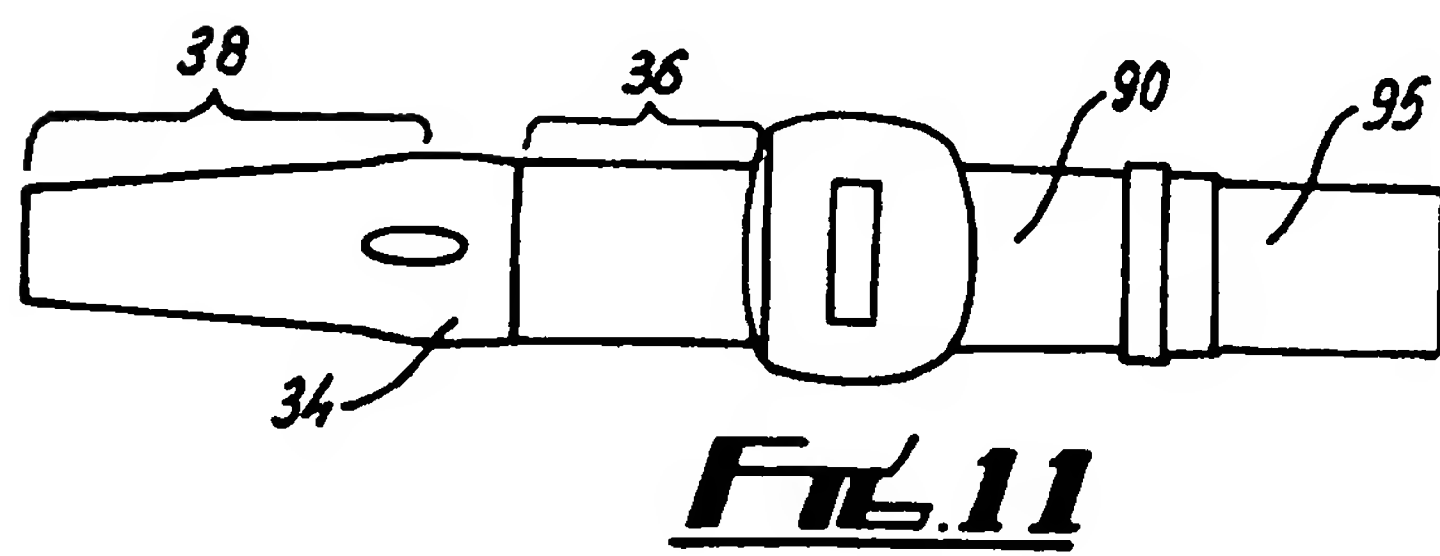
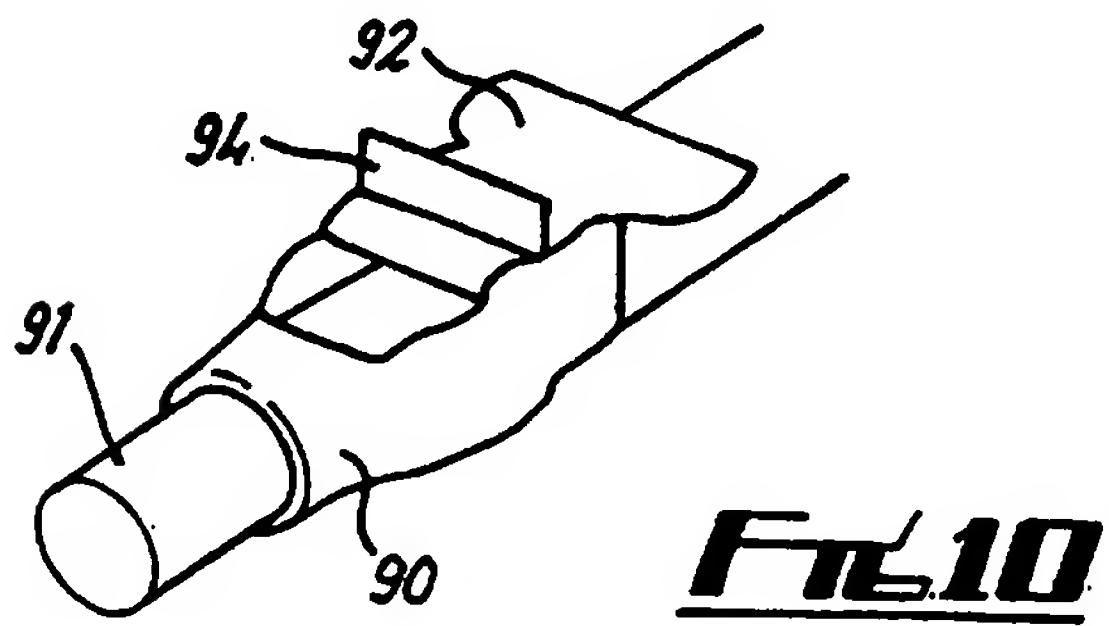
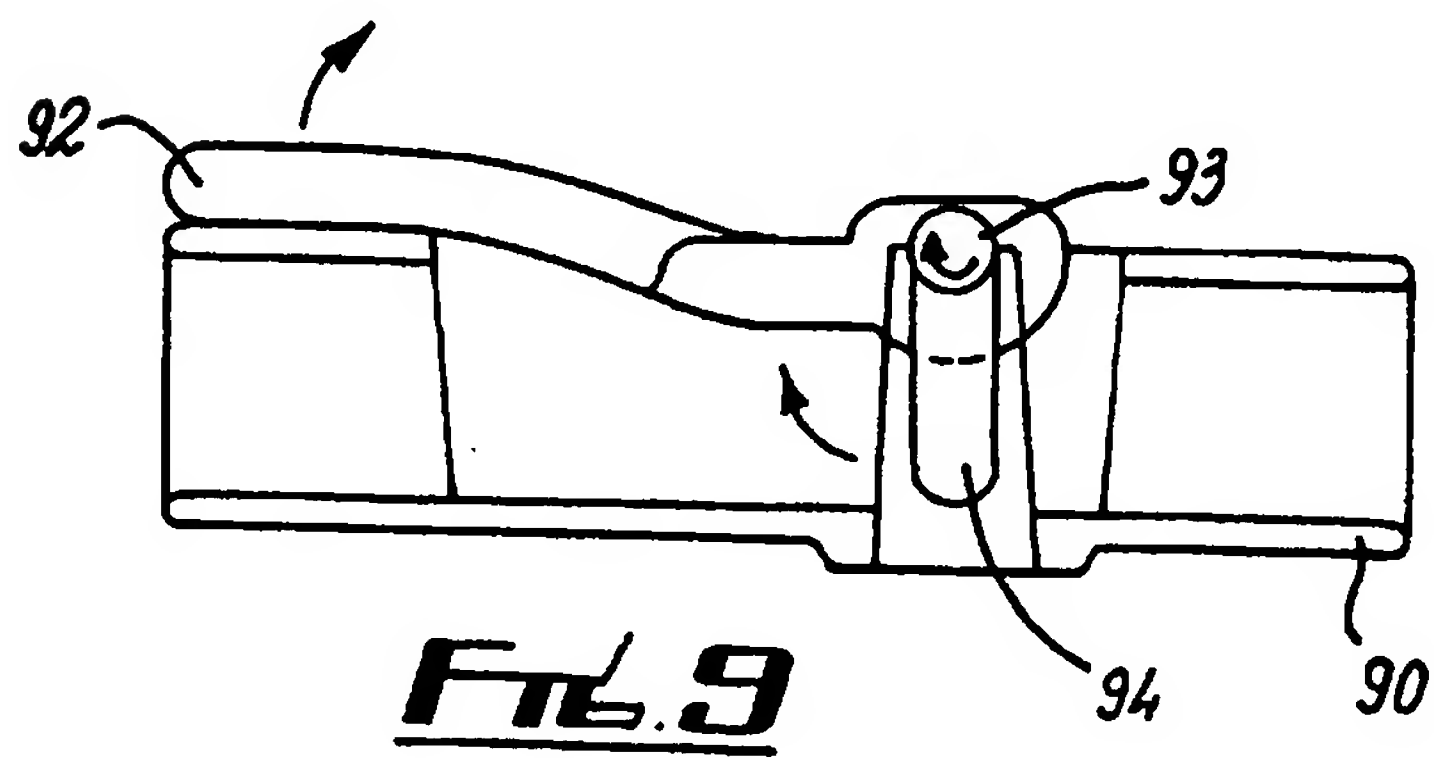
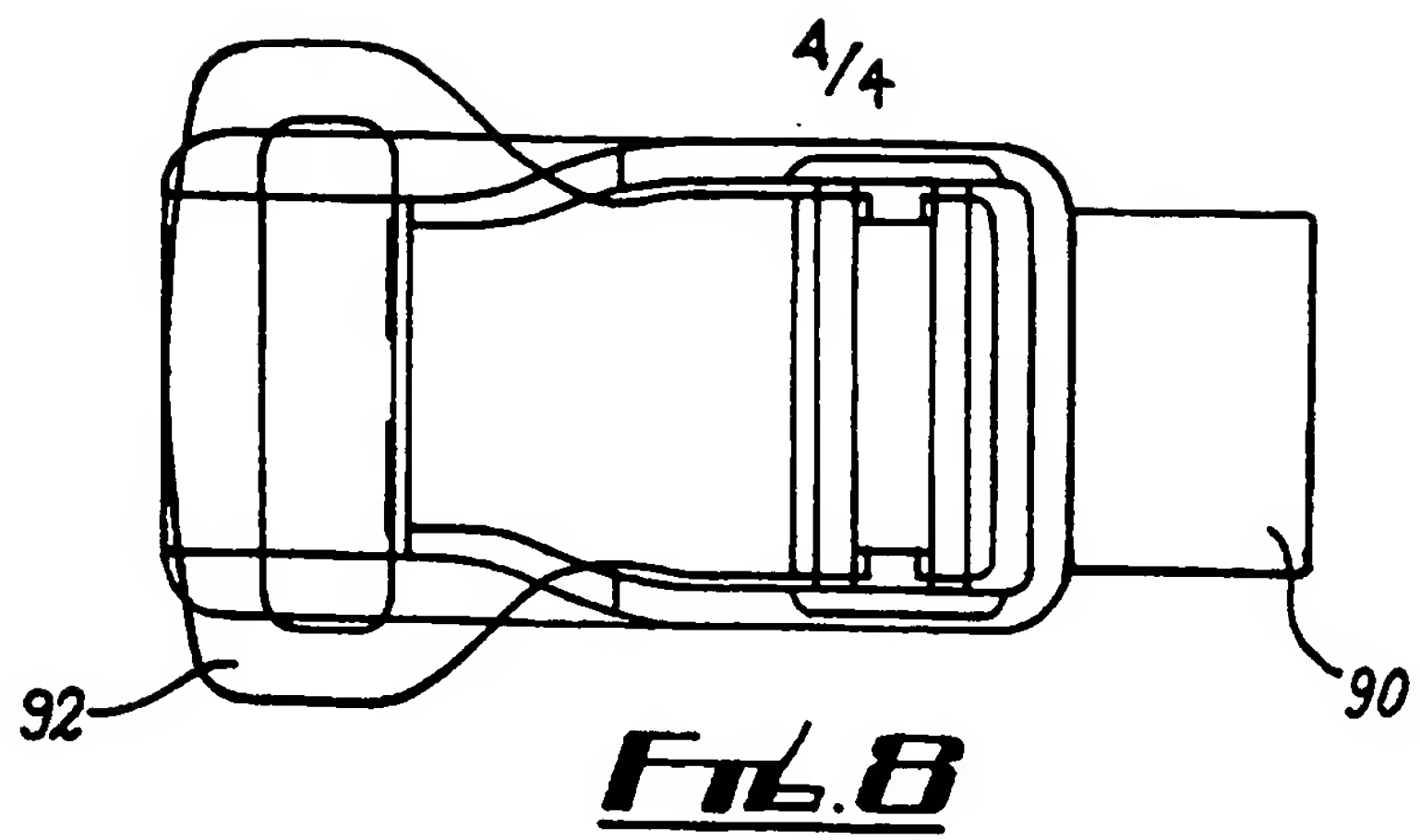
Fig. 5

Fig. 6



$\frac{3}{4}$ 

FILE 7



Urine Collecting Devices

This invention relates to urine collecting devices.

Devices for collecting urine have been available for many years. One such form of device is a so-called "leg-bag" which is designed to be strapped to the leg of an individual in use. Conventional leg bags typically consist of three main parts which are connected together.

In general, the first part consists of a substantially rigid plastics inlet tube which is cylindrical in cross section having a narrow internal diameter generally in the range 3 - 10 mm and typically 6 mm. One end of this inlet tube connects to a urine drainage device (e.g. a catheter or sheath) used for draining urine from the bladder of the individual and the other end of the inlet tube is connected to and opens into the second part of the leg bag.

The second part of a conventional leg bag consists of a flexible plastics "bag" which functions as a chamber for containing the collected urine. This bag is generally available in a range of capacities such as 350 ml, 500 ml and 750 ml.

A substantially rigid plastics outlet tube (the third part of the device) is connected to and leads from the bag. The outlet tube typically has a tap connected to it to facilitate emptying of the bag when required.

A conventional flutter valve is typically located at the junction of the inlet tube with the bag. The purpose of this valve is to allow urine to flow from the inlet tube into the collecting bag but to prevent back-flow of the urine from the collecting bag into the inlet tube.

Thus in use such a known urine collecting device is connected to the catheter/sheath at the free end of the inlet tube and the so connected device is strapped to a leg of the individual. Urine drained from the bladder of the individual flows through the inlet tube and into the collecting bag via the flutter valve located at the junction thereof. The urine collects in the bag.

5 The flutter valve is intended to prevent back-flow of the urine from the chamber into the inlet tube. The chamber may be emptied when required via the openable outlet tube.

However, the known urine collecting devices have numerous disadvantages, including being unreliable inconvenient and uncomfortable

10 for the user.

For instance the narrow plastics inlet tube typically used in the known devices creates a "bottle-neck" between the urine draining device and the collecting bag which restricts and slows the in-flow of urine. The resistance to in-flow created by the narrow inlet tube is compounded by the use of a

15 flutter valve located at the end of the inlet tube remote from the end connected to the urine draining device. The flaps of thin sheet plastics material which generally comprise a conventional flutter valve have a tendency, particularly when wet, to stick together so further inhibiting in-flow of the urine. A build up of the volume of urine and thus fluid pressure

20 in the end of the inlet tube behind the flutter valve is frequently responsible for causing the sheath to balloon and to detach from the penis to which it is secured causing the individual using the device great distress and

inconvenience.

A further frequently occurring problem encountered with the known devices is that of air bubbles forming and being trapped within the narrow inlet tube which are subsequently difficult to displace. These trapped air bubbles can cause blockages or partial blockages within the inlet tube thus inhibiting the smooth in-flow of urine, thus further restricting and slowing the in-flow. As fluid pressure increases behind the trapped air bubbles this can cause discomfort to the individual as the urine cannot be freely drained from the bladder.

The construction of known urine collecting devices - accordingly causes them to have a relatively short life span and thus require frequent replacement. This creates great inconvenience for the individual using the device and expense for the supplier of the device, which is often the local Health Authority of the individual.

The flutter valve that is conventionally used in known urine collecting devices does not reliably prevent back-flow of the urine from the collecting bag into the inlet tube. Thus individuals using such devices typically suffer frequent urinary tract infections.

The rigid plastics inlet tube and straps conventionally used to hold the device in place in use in known urine collecting devices are uncomfortable for the user and are indiscreet in that they are highly noticeable both by sight and touch even when covered with clothing.

The present invention seeks to provide a new urine collecting device,

a valve device, and a valve and clamp assembly for use in the new and in known urine collecting/drainage devices, which address the above mentioned problems.

According to a first feature of the present invention there is provided a urine collecting device comprising a substantially hollow chamber composed of a substantially flexible material having a first substantially elongate portion opening into an integral second collecting portion, the first portion having an inlet associated therewith at a position remote from the second portion, the second portion having at least one closable outlet associated therewith.

It is desirable that the first elongate portion is shaped so that in use it lies substantially flat against and follows the contour of the user's leg. The chamber may be provided in various dimensions to suit particular circumstances such as different ages and sizes of individuals. For example, the length of the longitudinal axis of the elongate portion may vary, preferably within the range 2cm - 50cm. The width of that portion may vary, preferably within the range 1cm - 5cm and the capacity of the chamber may vary, preferably within the range 200ml - 900ml.

Such a construction provides a urine collecting device having a highly improved performance over the prior art devices. By the provision of the integral first elongate portion and second collecting portion the need for the conventional inlet tubing is removed. Since the first elongate portion provides a relatively wide and flexible passageway for in-flowing urine

resistance to in-flow of urine in use is greatly reduced and the incidence of air bubbles forming is minimised. Any air bubbles which do form may however be more easily displaced than in the prior art devices due to the new construction of device provided by the present invention as described herein.

5 Furthermore, the contouring, generally flat cross-sectional shape of and use of flexible material for the elongate portion renders the device much more comfortable for the user and much less noticeable to others when covered by clothing, for example.

10 In use, it is most preferable for the device to be secured to the leg of an individual by using an elasticated net tubing which holds the bag in place comfortably whilst further reducing the visibility of the device.

15 Preferably the inlet is adapted to receive and have temporarily or permanently secured thereto a valve unit, the valve unit comprising a body having at least one passageway therethrough and at least one non-return valve means for substantially allowing fluid to flow through the or each passageway in a first direction but substantially preventing fluid flowing through the or each passageway in a second opposing direction. By appropriately orienting the valve unit in the inlet of the chamber, in use urine is able to flow through the valve unit into the chamber but is substantially prevented from flowing from the chamber out of the valve unit in use.

20 Most preferably a portion of the body of the valve unit is adapted to connect to a urine drainage device for draining urine from a bladder such as

a catheter, sheath or the like whereby in use the chamber may be connected to the draining device enabling urine to flow from the drainage device into the chamber in use. Most preferably the body comprises a connector portion for connection to a catheter or sheath in use.

5 By providing means for direct connection of the urine collecting device to a urine draining device such as a catheter whereby the urine flows from the urine draining device through the valve unit and directly into a low flow resistant elongate portion of the chamber, the likelihood of detachment of the urine draining device from the urine collecting device is minimized, thus providing the user with a more reliable and more durable device than the
10 known devices.

Advantageously the non-return valve means of the valve unit comprises at least one blocking means the blocking means being moveable between at least a first position and a second position, the or each passageway being substantially blocked with the blocking means in the first
15 position and being substantially open with the blocking means in the second position. Preferably the or each blocking means is movably mounted within the or each passageway. The blocking means is/are arranged in the or each passageway such that, in use, fluid flowing through the or each passageway in a first direction causes the blocking means to move to the
20 second position and fluid flowing through the or each passageway in the opposing second direction causes the blocking means to move to the first position.

Most preferably the or each blocking means comprises a resilient flap which extends substantially across the and/or each passageway. Conveniently the flap which traverses the passageway is hinged to a wall defining the passageway such that the flap provides a gate across the passageway. In use, in-flow of urine into the passageway causes the flap to flex which urges the "gate" open by displacing the flap to the second position, enabling urine to pass through the "gate", flow through the passageway and out of the valve unit, in this case, into the collecting chamber of the urine collecting device. Back-flow of urine from the chamber into the passageway of the valve unit causes the flap to return to the transverse first position so closing the "gate" so that back-flow of urine from the chamber back through the valve unit is substantially prevented.

Conveniently the or each blocking means comprises a plug which is preferably attached to a resilient tension member such as a spring which in turn is secured to the walls of a passageway, the passageway and plug being relatively dimensioned such that in use in-flow of urine into the passageway causes displacement of the plug to the second position enabling urine to by-pass the plug and flow through the passageway and into the collecting chamber whereas back-flow of urine from the chamber into the passageway of the valve unit causes the plug to move to the first position so that back-flow of urine from the chamber back through the valve unit is substantially prevented.

Preferably, the passageway is constricted at at least one point therein,

the or each plug being dimensioned such that the plug(s) blocks the constricted passageway in the first position and the plug(s) does not block the passageway in the second position. Conveniently constriction of the passageway is provided by a wall traversing the passageway, the wall having an aperture therein. The plug may be composed of any suitable material such as plastics etc.

It is desirable that the or each outlet of the collecting chamber is adapted to receive and have temporarily or permanently secured thereto a connecting unit for connecting the chamber to a clamping device, tap device, night bag or any other appropriate device or combination of devices to which an outlet of a urine collecting device may be usefully connected. The connecting unit preferably comprises a body of appropriate external shape and having at least one passageway therethrough.

Preferably the valve unit and/or connecting unit comprises a closable port in the body in communication with at least one passageway of the respective unit. By provision of such a port, samples of urine may be conveniently drawn from the urine flowing through the unit(s).

The valve and/or connecting unit may be composed of any suitable fluid impervious material but a light weight, rigid, non-toxic, non-irritant material is particularly preferred, for example an injection moulded plastics material. Thus a unit may be provided which combines the above preferred properties whilst also being economical and simple to manufacture.

According to a second aspect of the present invention there is

provided a valve unit as described above for use with a urine drainage and/or collecting device.

5 Preferably the body of the valve unit comprises at least one connector portion adapted for connection of the valve unit to a urine collecting device such as conventional leg bags, night drainage bags or other suitable receptacle, the urine collecting devices in accordance with the first aspect of the present invention, urine drainage devices such as catheters or sheaths, or other urine delivery tubes. Conveniently the external profile of the or each connector portion is substantially tapered to facilitate connection of the above mentioned devices, having a wide range of dimensions, to the unit.

10 In a preferred embodiment the valve unit is substantially elongate, either end of the valve unit having a tapered external profile for ease of connection of one of the above mentioned devices to one or both ends of the valve unit by push-fitting the device(s) onto a tapered end of the unit to the required extent to ensure the connection is secure. For example, a catheter may be connected to the "entrance-end" of the valve unit and a leg bag may be connected to the "exit-end" of the valve unit.

15 The valve unit may also be advantageously used with urine drainage devices such as a catheter or sheath. For such uses there is most preferably provided an assembly comprising a valve unit as hereinbefore described together with a closable tap.

20 According to a third aspect of the present invention there is provided

a valve and tap assembly comprising a valve unit as hereinbefore described, a deformable outlet tube connected to the body of the valve unit such that the passageway through the tube is in communication with the or each passageway of the valve unit, the outlet tube having a closable tap associated therewith for releasable closure of the passageway through the tube. One end of the valve unit may accordingly be connected to a urine drainage/collecting device and the other end is connected to the outlet tube.

Such an assembly has particular use in combination with a urine drainage device such as a catheter. The catheter is connectable to the inlet end of the valve unit. When drainage of urine from the catheter is required, for example during the night the tap may be opened and urine drains out of the outlet tube.

Any suitable closable tap/releasable clamp may be used but in a preferred embodiment the closable tap comprises a body adapted to be mountable on the tube and clamping means for releasably clamping the walls of the tube together for closure of the outlet tube.

Most preferably the clamping means comprises a lever arm having a flange extending therefrom, the lever arm being rotatably mounted on the tap body, the lever and flange being arranged such that rotation of the lever in one direction causes the flange to move to a first position whereby the flange depresses a wall of the tube to close the tube and rotation of the lever in the opposing direction causes the flange to move to a position whereby the depressed wall is released to open the tube.

The assembly may be connected to any urine collecting/drainage device requiring a non-return valve in combination with a closable tap, for example all those devices hereinbefore mentioned.

5 The valve unit provided by the present invention, when appropriately oriented and secured in a urine collecting device reliably prevents back-flow of urine out from the urine collecting chamber thus greatly reducing the likelihood of infections, particularly urinary tract infections in the individual using the device. However, whilst back-flow is reliably prevented by such a valve, in-flow of urine is not restricted and thus pressure is not caused to build up behind the valve unit in use. An effective and reliable valve unit is
10 thus provided by the present invention which is however also advantageously simple and economical to manufacture. The valve unit may be adapted to fit any known urine collecting devices and/or the new urine collecting device as described herein.

15 The present invention will now be described by way of example only with reference to the accompanying drawings in which:

Figure 1 shows a diagrammatical representation of a conventional prior art urine collecting device;

20 Figure 2(a) shows a diagrammatical representation of a longitudinal section through a urine collecting device according to the first aspect of the present invention;

Figure 2(b) shows a horizontal section through the device of Figure 2(a) along line A-A;

Figure 3 shows a diagrammatical representation of a valve unit according to the second aspect of the present invention;

Figure 4 shows a diagrammatical representation of a longitudinal section through an alternative embodiment of valve unit;

5 Figure 5 shows a diagrammatical representation of a plan view of the flap section of the valve unit of figure 4;

Figure 6 shows a side elevation of the connector section of the valve unit of figure 4;

Figure 7 shows a diagrammatical representation of the device of Figure 2 having a valve unit and connecting unit fitted therein;

10 Figure 8 shows a diagrammatical representation of a plan view of one embodiment of the clamp shown in figure 7;

Figure 9 shows a diagrammatical representation of a longitudinal section through the clamp of figure 8;

15 Figure 10 shows a diagrammatical representation of a perspective view of the clamp unit of figure 8 in the open position in use; and

Figure 11 shows a diagrammatical representation of a side elevation of valve and clamp assembly in accordance with the third aspect of the present invention.

20 With reference to Figure 1, a known urine collecting device consists of a hollow urine collecting chamber 2 of a flexible plastics material into which a rigid plastics inlet tube 4 leads. Inlet tube 4 has a narrow internal diameter (x) as compared to width (y) of chamber 2. A connector 6 is

attached to the free end of inlet tube 4. The external shape of connector 6 is dimensioned to connect to a catheter (not shown). A conventional flutter valve 8 is secured to that end of the inlet tube 4 which is connected to the chamber 2. In use, urine drained from an individual's bladder flows from the catheter through inlet tube 4 and flutter valve 8 in the direction shown by arrow 10 and collects in the chamber 2.

A rigid plastics outlet tube 12 leads from chamber 2. A tap device 14 fitted to the outlet tube 12 allows the outlet to be opened and closed as desired.

The device shown in Figure 1 may be strapped to the leg of an individual in use by means of straps 16 adhered to the corners of chamber 2.

With reference to Figure 2, the urine collecting device according to the present invention consists of a hollow chamber 20 composed of a flexible plastics material. The chamber 20 has two integral portions; an elongate portion 22 and collecting bag portion 24. The chamber 20 has an inlet 26 provided at the end of elongate portion 22 that is remote from bag 24 and has an outlet 28 provided at that surface of the bag 24 remote from elongate portion 22.

The elongate portion 22 is contoured in an upper region 30 thereof which is shaped to generally follow the natural contour of the knee when the device is secured to the leg of an individual in use.

The neck region 32 of the elongate portion 22 has a more bulbous

shape relative to the remainder of the elongate portion 22 which ensures that restriction to in- flow of urine entering chamber 20 is minimised. As can be seen in Figure 2(b) the remainder of the elongate portion 22 has a flattened elliptical horizontal cross-section which enables it to lay generally flat against the user's leg whereby the device may be worn discretely and be virtually unnoticeable when worn under clothing.

With reference to Figure 3, the valve unit according to the second aspect of the present invention consists of a rigid, light-weight, injection moulded plastics body 34. The external profile of the body 34 is shaped so that region 36 is adapted to fit tightly in the inlet of a urine collecting device urine drainage device or other fluid delivery tube or the like, and region 38 is shaped to connect to a catheter, sheath or other fluid delivery tube or the like. A single passageway 45 is provided through the body 34 leading from entrance port 40 to exit ports 42. A closable sample port 44 is provided through the wall of the body 34 which communicates with the internal passageway through which samples of urine may be conveniently drawn from the urine flowing through the passageway in use. The passageway is constricted within region 36 by a wall 46 which traverses the passageway the wall having an aperture 48 of a smaller diameter than the passageway therein. A plastics ball 50 is secured to one end of spring 52, the other end of which being secured to end wall 54 of body 34 of the unit. The ball is thus located on the side of wall 46 remote from entrance 40. The plastics ball 50 is of diameter at least as large as that of the aperture 48 but less

than the diameter of the passageway 45.

5 In use, in-flow of fluid through entrance port 40 through passageway 45 in the direction shown generally by arrow 46 causes ball 50 to be displaced away from aperture 48 allowing fluid to flow through aperture 48 along passageway 45 and out of ports 42, by-passing ball 50. However, back-flow of fluid in the opposite direction causes ball 50 to move to a position where it completely blocks off the aperture 48 forming sealing contact with walls 46 so that fluid flowing from ports 42 through passageway 45 is prevented from flowing any further. The plastics ball 50 is thus dimensioned such that it is sufficiently large to block aperture 48 but
10 sufficiently small not to adversely restrict the flow of fluid through passageway 45 in region 36 of the unit.

When appropriately oriented and shaped to fit tightly within the inlet of a known urine collecting device, the valve unit of the present invention provides a highly effective and reliable valve which allows urine to flow
15 freely into the collecting chamber yet reliably prevents urine from flowing back from the collecting chamber, whilst also being simple and economical to manufacture. When the valve unit is used in combination with a urine collecting device according to the present invention as shown in Figure 4, a particularly reliable device is provided having a greatly improved
20 performance over prior art devices.

With reference to figures 4, 5 and 6 an alternative embodiment of valve unit comprises three inter-connecting parts 60, 61 and 62 which may

be conveniently preassembled to form an integral body 34 is shown. It will be appreciated that a unit having those parts may be provided as a single integral unit or multiple part unit having at least two parts.

Section 60 serves as a connector. The external profile of region 38 of section 60 is tapered in a stepped fashion to facilitate universal application of the valve unit as it will connect to catheters, sheaths, fluid delivery tubes and the like having a wide range of diameters by push fitting the connector into the catheter etc. to an appropriate extent. Section 62 serves as a second connector. The external profile of region 36 is also tapered and is designed to push-fit tightly into a urine collecting device or urine drainage device, fluid delivery tube and the like.

A single passageway 45 is provided through the body 34 leading from entrance port 40 to an exit port 42. A closable sample port 44 is provided through the wall of the body 34 as in the previously described embodiment.

Section 61 serves as a non-return valve. Section 61 is provided as a hollow tubular structure having a transverse resilient flap 64 extending across one end thereof. The flap is hinged to the wall 65 of section 64 at one point 66.

Section 61 is fitted onto one end of section 62 and is secured into position between section 60 and section 61. Correspondingly shaped engagement means 70, 71 and 72 are provided on each of the sections to allow the three sections 60, 61 and 62 to snap fit together as shown. The resilient flap 64 accordingly traverses the passageway 45, acting as a gate

across the passageway.

In use, in-flow of fluid through entrance port 40 through passageway 45 in the direction shown generally by arrow 46 and causes the flap to flex in the direction shown by arrow 80 thus opening the gate provided by the flap 64 in the passageway. The fluid is thus able to flow through the passageway and out of the exit port 42. However, back-flow of fluid in the opposite direction, as represented by arrow 82, causes the flap to flex in the opposite direction until it abuts shoulder 83 of the connector section 60, thus blocking the passageway, as shown in figure 4. In this manner fluid flowing from port 42 through the passageway is prevented from flowing any further.

With reference to Figure 7 the body 34 of the valve unit is shaped to tightly fit within inlet 26. Region 36 of body 34 is positioned substantially within the bulbous area 32 of the chamber 20 and region 38 and the sample port 44 are located externally of the chamber 20.

A connector 160 is shaped to fit tightly within outlet 28 of the chamber 20. As shown in Figure 7, the connector 60 is fitted to a soft flexible tube 162 to which a releasable clamp 164 is attached.

It will be appreciated by those skilled in the art that connector 60 may be shaped to connect to various devices such as a tap, a further urine collecting device for use at night etc. In use region 38 of the valve unit is connected to a catheter or the like (not shown). Urine so drained from the bladder flows unrestrictedly into the passageway (not shown for clarity) of

the valve unit body 34 in the direction as indicated generally by arrow 65. In-flow of urine displaces ball 50 from aperture 48 and the urine is thus able to flow through the aperture 48 and out through exit ports 42. Entrance of the in-flowing urine into chamber 20 is free and unrestricted as area 32 may expand to accommodate relatively large volumes of in-flowing urine. Pressure accordingly does not build up in the catheter behind the valve unit and thus the likelihood of the catheter and valve unit becoming disconnected due to pressure build-up caused by restricted in-flow is significantly reduced.

Unrestricted flow of urine continues down the elongate portion 22 of chamber 20 and collects in the integral collecting portion 24 of chamber 20. The likelihood of air bubbles forming in elongate portion 22 is significantly reduced in view of the smooth in-flow of urine provided by the construction of the present urine collecting device. Any air bubbles which do form are easily displaceable in view of the wide and flexible passageway provided by the elongate portion 22.

Urine may be emptied from the collecting bag 24 by releasing the clamp 164. Samples of urine may be drawn from the passageway of valve unit through port 44.

Back-flow of urine from the chamber 20 into the catheter (not shown) is effectively prevented by the valve unit 34. Flow of urine into the passageway of the valve unit through ports 42 in the opposing direction to that indicated by arrow 65 causes the ball 50 to move to a position where it blocks aperture 48 thus preventing the urine flowing beyond aperture 48.

With reference to figures 8, 9 and 10 a clamp is composed of a durable, lightweight plastics material. The clamp comprises a hollow, substantially tubular body 90 through which a flexible fluid delivery tube 91 fits in use. A lever arm 92 is rotatably mounted onto the body 90 about a spindle 93. A flange 94 extends from the lever arm.

5 In use, elevation of lever arm 92 causes rotation of flange 94 from the position shown in figure 9 to the position shown in figure 10.

In the position shown in figure 9, in use, where the clamp is mounted on a deformable tube, the flange 94 depresses the deformable wall of the tube, so clamping the passageway through the tube closed. Elevation of the
10 lever arm 92 to the position shown in figure 10, in use, where the clamp is mounted on a deformable tube, releases the flange 94 from the wall of the tube allowing the passageway through the tube to open.

The clamp device is particularly advantageous when incorporated in an assembly comprising a valve unit as previously described. With reference
15 to figure 11 the valve unit 34 has a piece of deformable tubing 95 push-fitted (not shown) onto the region 36 of the valve unit. A clamp unit 90 as hereinbefore described is mounted onto that deformable tubing. This assembly comprising a valve unit 34 having deformable tubing extending therefrom on which a clamp is mounted has particular application as a non-
20 return catheter valve. A catheter, sheath or other fluid delivery tube may be push-fitted onto the connector portion 38. The clamp is flipped into the open position as shown in figure 10 when urine is to be drained from the

catheter. The clamp and valve assembly shown in figure 11 may be adapted for use in combination with the urine collecting device of the present application, known urine collecting devices and night drainage bags and the like.

It will accordingly be appreciated by those skilled in the art that the urine collecting device and valve unit and clamp, particularly when used in combination, provide an effective means of collecting the urine drained from an individual having a highly improved, reliable performance, which reliably prevents urinary tract infections occurring in the user, whilst being comfortable and discreet to use and simple and economical to manufacture.

Claims

1. A valve unit for use with urine drainage/collecting devices, the valve unit comprising a body having at least one passageway therethrough and at least one non-return valve means for substantially allowing fluid to flow through the or each passageway in a first direction but substantially preventing fluid flowing through the or each passageway in a second opposing direction.

2. A valve unit as claimed in claim 1 wherein the non-return valve means comprises at least one blocking means, the blocking means being moveable between at least a first position and a second position, the or each passageway being substantially blocked with the blocking means in the first position and being substantially open with the blocking means in the second position.

3. A valve unit as claimed in claim 2 wherein the blocking means is/are arranged in the or each passageway such that, in use, fluid flowing through the or each passageway in a first direction causes the blocking means to move to the second position and fluid flowing through the or each passageway in the opposing second direction causes the blocking means to move to the first position.

4. A valve unit as claimed in claims 2 or 3 wherein the blocking means comprises a resilient flap which extends substantially across the and/or each passageway.

5. A valve unit as claimed in any of claims 2 or 3 wherein the blocking

means comprises a plug, the plug being attached to a spring mounted within the or each passageway.

6. A valve unit as claimed in any preceding claim wherein the body comprises at least one connector portion adapted for connection of the valve unit to a urine collecting device and/or urine drainage device in use.

5 7. A valve unit as claimed in claim 6 wherein the external profile of the or each connector portion is substantially tapered.

8. A valve unit as claimed in any preceding claim wherein the body comprises a closable port in communication with at least one of the passageway(s).

10 9. An assembly for use with urine drainage/collecting devices, comprising a valve unit as claimed in claims 1 - 8, one end of which is connectable to the urine drainage/collecting device, a deformable outlet tube connected to the body of the valve unit such that the passageway through the tube is in communication with the or each passageway of the valve unit, 15 the outlet tube having a closable tap associated therewith for releasable closure of the passageway through the tube.

20 10. An assembly as claimed in claim 9 wherein the closable tap comprises a body adapted to be mountable on the tube and clamping means for releasably clamping the walls of the tube together for closure of the passageway of outlet tube.

11. An assembly as claimed in claim 9 or 10 wherein the clamping means comprises a lever arm having a flange extending therefrom, the lever arm

being rotatably mounted on the tap body, the lever and flange being arranged such that rotation of the lever in one direction causes the flange to move to a first position whereby the flange depresses a wall of the tube to close the tube and rotation of the lever in the opposing direction causes the flange to move to a position whereby the depressed wall is released to open the tube.

12. A urine collecting device comprising a substantially hollow chamber composed of a substantially flexible material having a first substantially elongate portion opening into an integral second collecting portion, the first portion having an inlet associated therewith at a position remote from the second portion, the second portion having at least one closable outlet associated therewith.

13. A urine collecting device according to claim 12 wherein the first elongate portion is shaped so that in use it lies substantially flat against and follows the contour of the user's leg.

14. A urine collecting device according to claim 12 or 13 wherein the inlet is adapted to receive a valve unit as claimed in claims 1 - 8.

15. A urine collecting device according to claim 12, 13 or 14 wherein the outlet is adapted to receive an assembly as claimed in claims 9 - 11.

16. A valve unit substantially as hereinbefore described with reference to figures 3 to 7 and 11.

17. A urine collecting device substantially as hereinbefore described with referenced to figures 2 and 7.

18. An assembly substantially as hereinbefore described with reference to figures 8 to 11.



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Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): F2V (VV3)

Int Cl (Ed.6): A61F (5/44)

Other: On-line: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2171315	(Illinois Tool) see page 9 line 122 - page 10 line 7 and figures 19-23	1-4 and 6-8
X	EP 0134345 A1	(Hobby et al) see page 8 lines 18 - page 9 line 26	1-3, 5, 6 and 8
X	US 4946451	(Cianci) see column 3 line 56 - column 4 line 2	1, 2, 4 and 6
X	US 4559049	(Haan) see column 2 line 60 - column 3 line 14	1-3, 5, 6 and 7
X	US 4306705	(Svensson) see column 8 lines 57-68	1-4, 6, 7 and 9-11
X	US 3968925	(Johnston) see column 3 lines 1-23	1-4 and 6

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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